



DOMINION ENERGY SOUTH CAROLINA, INC.
Cayce, South Carolina

Historic Structures and Visual Impact Assessment Report
for the
Toolebeck - Aiken 230 kV Tie
and Segments of the
Graniteville #2 – Toolebeck 230 kV
and Toolebeck – South Augusta 230 kV Tie
and
Associated Facilities

Aiken County, South Carolina

December 2019

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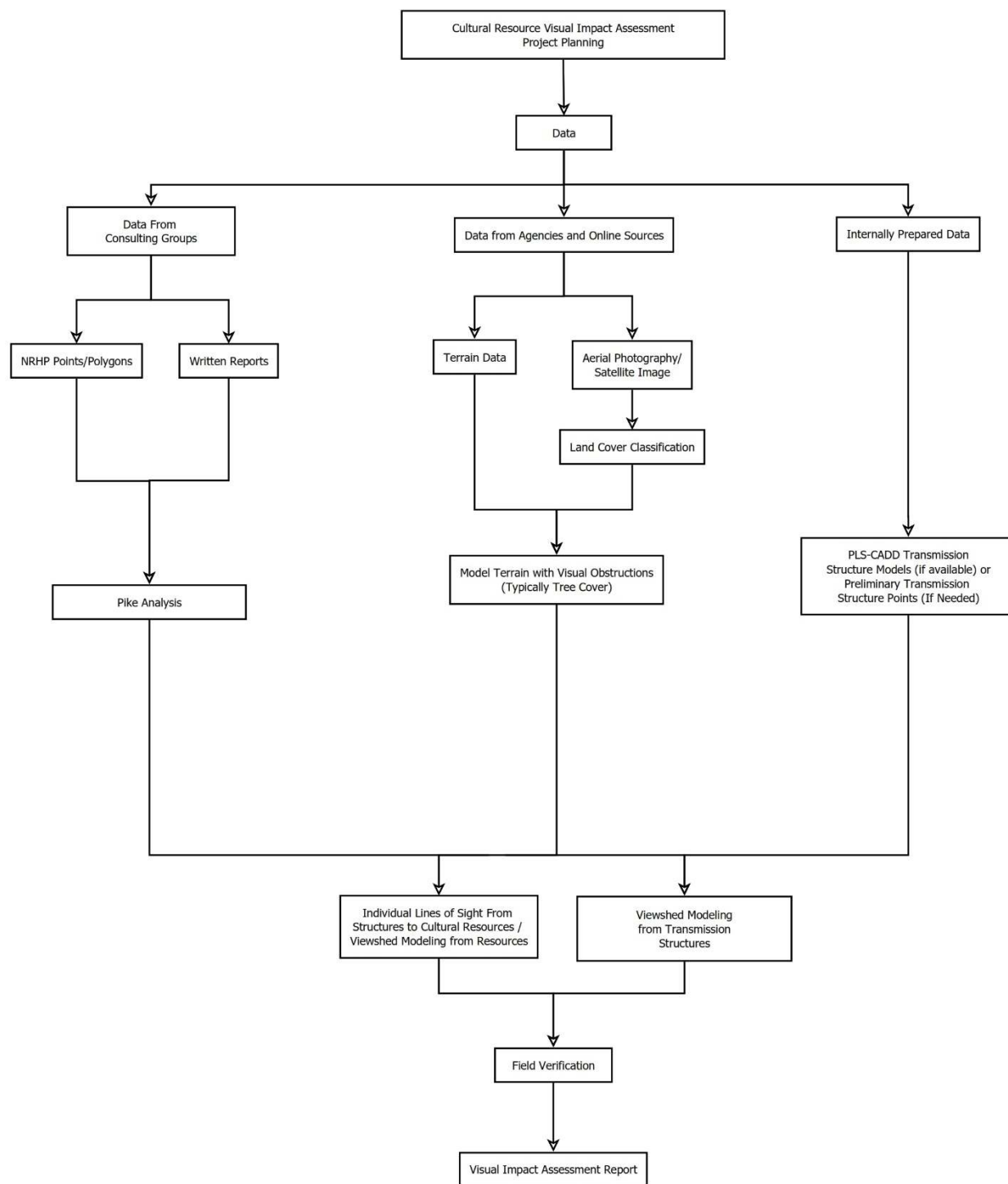
I. VISUAL IMPACT ASSESSMENT STUDY METHODOLOGY

On behalf of Dominion Energy South Carolina, Inc. ("DESC"), Pike Engineering, LLC ("Pike") conducted a visual impact assessment study ("Study") in November 2019 to determine the degree of visual effects, if any, the future Toolebeck – Aiken 230 kV Tie, Graniteville #2 – Toolebeck 230 kV, and Toolebeck – South Augusta 230 kV Tie, and associated facilities will have on historic resources. Throughout this report, the lines will be referred to individually as the Toolebeck – Aiken 230 kV Tie, Graniteville #2 – Toolebeck 230 kV, and Toolebeck – South Augusta 230 kV Tie – or collectively as Project Lines. Pike assessed resources within an approximate 2.5-mile-wide zone (1.25 miles on each side of the Project Lines), which is referred to as the "study corridor" throughout this report.

The Study evaluated historic resources in the study corridor that had previously been identified and located by Brockington and Associates, Inc. ("Brockington"). Brockington, a nationally recognized cultural resource consulting firm, identified the resources by reviewing the South Carolina State Historic Preservation Office (SHPO) repository, ArchSite, for cultural data. ArchSite includes information on National Register of Historic Places (NRHP) listed properties, resources recorded during Section 106 investigations, and resources recorded through surveys for counties and municipalities. Additionally, Brockington conducted a windshield reconnaissance survey throughout the study corridor to identify and locate any unrecorded resources, of which none were found eligible or potentially eligible for listing in the NRHP. Brockington's records review and windshield survey identified six historic resources in the study corridor that were comprehensively evaluated by Pike during the Study to determine the ones, if any, that may be affected visually by DESC's future Project Lines. Brockington summarized the findings of the cultural resources background research and windshield reconnaissance survey for the Project Lines in a letter report dated December 2019 (Appendix C to the *Transmission Line Siting and Environmental Report for the Toolebeck – Aiken 230 kV Tie and Segments of the Graniteville #2 – Toolebeck 230 kV and Toolebeck – South Augusta 230 kV Tie and Associated Facilities*).

The Study was completed by executing a methodology that includes the application of computer modeling in conjunction with field evaluations of existing conditions at each identified historic resource. Application of the methodology results in a quantitative and qualitative assessment of the visual impact, or lack thereof, which could possibly result from the addition of the proposed transmission lines. The methodology utilized in this study is illustrated in the flowchart diagram shown in Figure 1.

Figure 1: Cultural Resource Visual Impact Assessment Process



The following tasks summarize the key steps that were executed to complete the Study.

Task 1 – Gather Existing Information and Data

Pike collected and reviewed data within the study corridor that included a digital elevation model raster (DEM), aerial photography, and land cover information. Cultural resource locations and NRHP-eligibility status were provided by Brockington. Only resources that Brockington determined to be listed, eligible, potentially eligible, or unassessed were included in the Study. Resources determined to be ineligible for the NRHP were excluded from the Study.

Task 2 – Digital Modeling

Using the information and data collected in Task 1, Pike created a digital model using ESRI's ArcGIS software. First, an existing grade terrain was created using topographical data (Figure 2). Aerial photography was then used to locate and extract visual obstructions in the study corridor; primarily mature vegetative cover (Figure 3). The obstructions in the form of ArcGIS polygons were extruded based on their estimated height off of the DEM, conservatively determined to be 60 feet, creating a single surface that now includes both topography and mature vegetative visual obstructions (Figure 4). This modified surface will provide the basis for assessing visibility from cultural resources to the Project Lines' route.

Working without the aid of engineered transmission structure models or locations, certain assumptions were made from similar projects previously completed to guide the visual impact assessment to maximize the accuracy of the data produced. Based on the voltage, land cover, and terrain, similar to that of DESC's Graniteville #2 - South Augusta / Urquhart - Graniteville 230 kV Lines¹, a single-pole structure height of 100 feet and a conservative 400-foot span was used in preliminary modeling of the Toolebeck – Aiken 230 kV Tie, Graniteville #2 – Toolebeck 230 kV, and Toolebeck – South Augusta 230 kV Tie. The maximum elevation above sea level of the preliminary transmission structures was used to develop a viewshed, which delineated areas within the vicinity of the lines where views of structures or portions of structures may be possible. The viewshed model was overlaid onto mapping, displaying the locations of the six historic resources identified by Brockington. Furthermore, multiple lines-of-sight in the form of profile graphs were created from each of the historic resources to display any obstructions, or lack thereof, that lie in the visual path of views from each historic resource toward the Project Lines' route.

¹ On DESC's behalf, Pike recently completed line engineering for the Graniteville #2 – South Augusta / Urquhart - Graniteville 230 kV Lines.

Task 3 – Field Verification

Pike visited, photographed, and assessed all accessible historic resources eligible for the NRHP or potentially eligible for the NRHP as determined by the background research and windshield survey to verify the accuracy of the work products developed in Task 2.

Task 4 – Preparation of a Visual Impact Assessment Report

Pike prepared a Visual Impact Assessment Report to predict and document the visual effects to historic sites eligible or potentially eligible for the NRHP that may result from construction of the Project Lines.

II. GRAPHIC INTERPRETATION OF THE VISUAL PROBABILITY ANALYSIS

This report includes literary evaluations, mapping, photography, and line-of-sight profile graphs to clearly display any significant structures or places that may be impacted by a view of the proposed Toolebeck – Aiken 230 kV Tie, Graniteville #2 – Toolebeck 230 kV, and Toolebeck – South Augusta 230 kV Tie. Figures 2, 3, 4, 5 and 6 are included to graphically illustrate how Pike analyzed view probability from each historic resource by applying factors that included historic resource locations, transmission line structure locations (based on engineering assumptions), topography and vegetation, if any, between the resource and potential 230 kV transmission line structures. Figures 2, 3 and 4 illustrate how view analysis profiles are developed using topography and vegetative conditions present between viewpoints (i.e., specific historic resource locations) and proposed transmission line structures for the purposes of analyzing how views from the resources in the direction of the proposed transmission line are affected by the combination of landforms and vegetation. Figures 5 and 6 graphically depict how computer analyses, based on line-of-sight from the resources to proposed transmission line structures, are completed using the information developed from analyzing the topography and vegetative cover present between the resource and proposed transmission line structures.

Figure 2: Topography

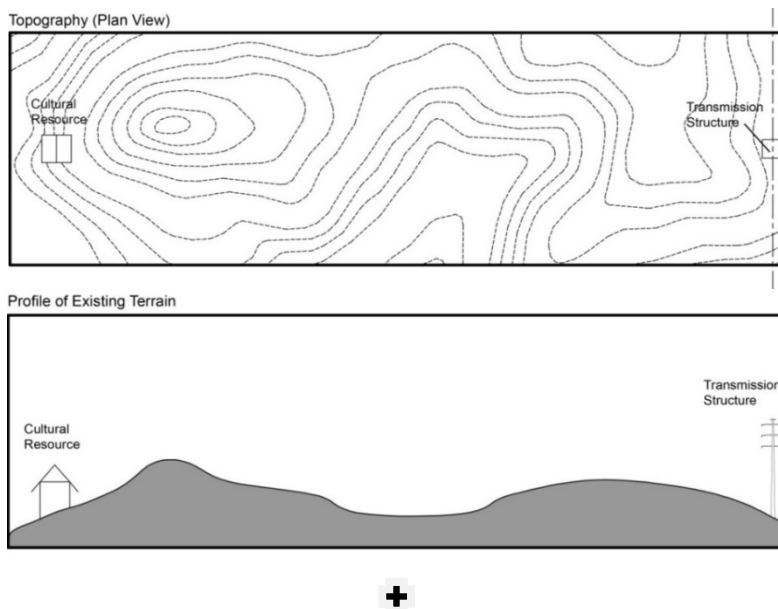


Figure 3: Mature Vegetative Cover

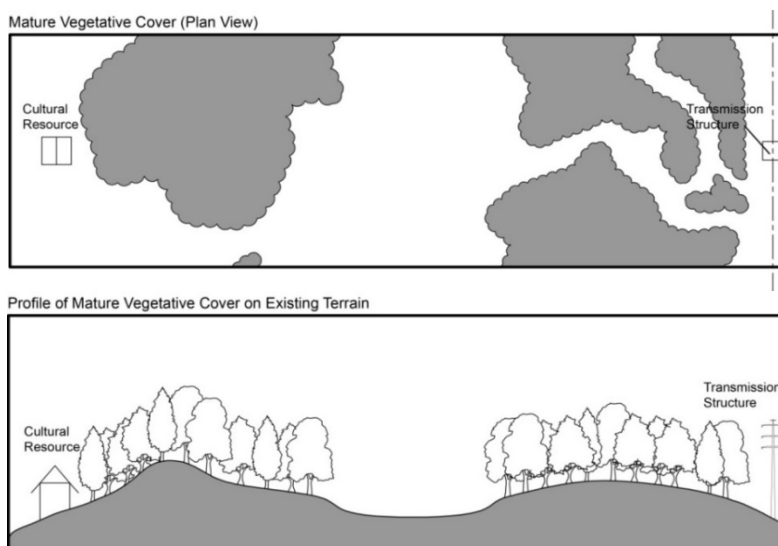
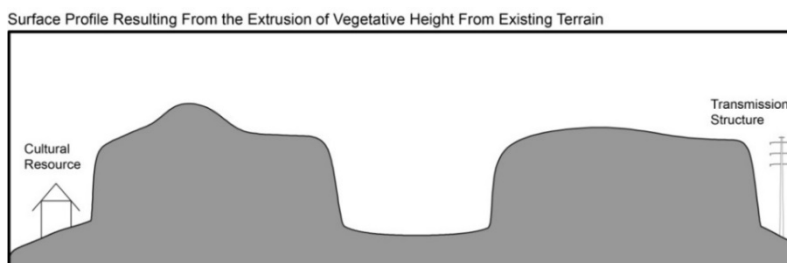


Figure 4: Resulting Surface (combined effects of topography and vegetation)



III. GRAPHIC EXPLANATION OF VIEW ANALYSIS PROFILES

Figure 5: Profile Graph Example (refer to legend following Figure 6)

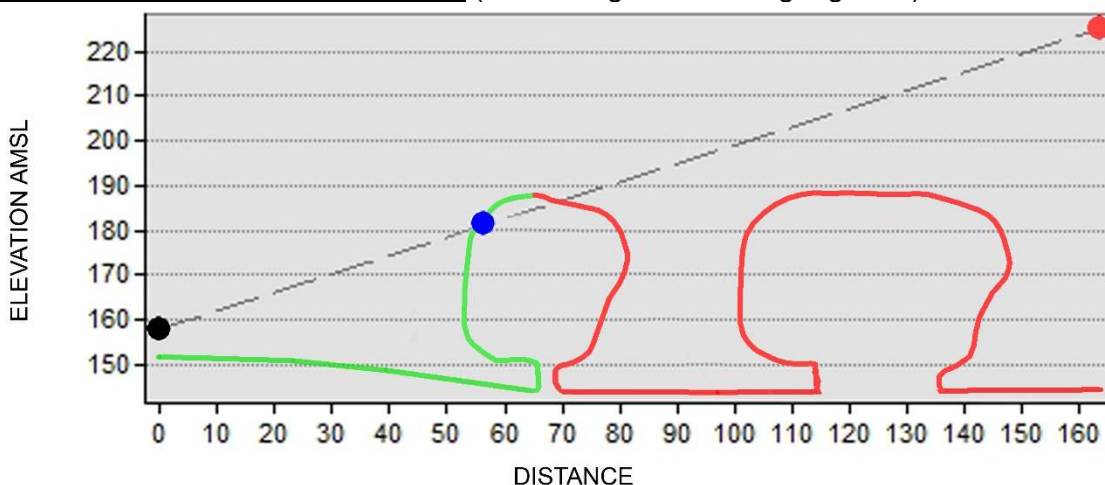
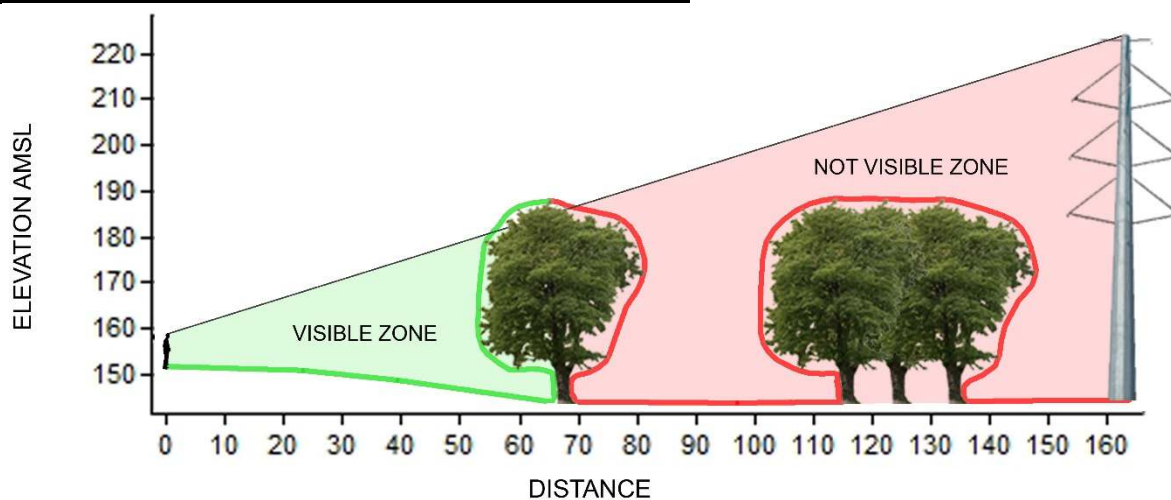


Figure 6: Profile Graph Example (Visualization)



Legend

- Probable Visible Terrain/Vegetative Surfaces from the Viewpoint
- Probable Not Visible Terrain/Vegetative Surfaces from the Viewpoint
- Viewpoint at the Resource
- Screening Element (Terrain or Vegetation) on the Line-of-Sight From the Viewpoint to the Top of Line Structure
- Top of Line Structure Seen
- Top of Line Structure Not Seen

IV. STUDY AREA MAPPING INCLUDING HISTORIC RESOURCE LOCATIONS

Figure 7 shows the project location, including the study corridor that extends outward 1.25 miles from the proposed Project Lines' route, over United States Geological Survey (USGS) topographic mapping. Overlaid on the mapping are the locations of the historic resources that are evaluated in this report. Figures 8, 9, 10, and 11 are enlarged segments of mapping showing the locations of the historic resources in relation to area roads, railroads, county boundaries and major water bodies.

Figure 7: Historic Resource Vicinity Map

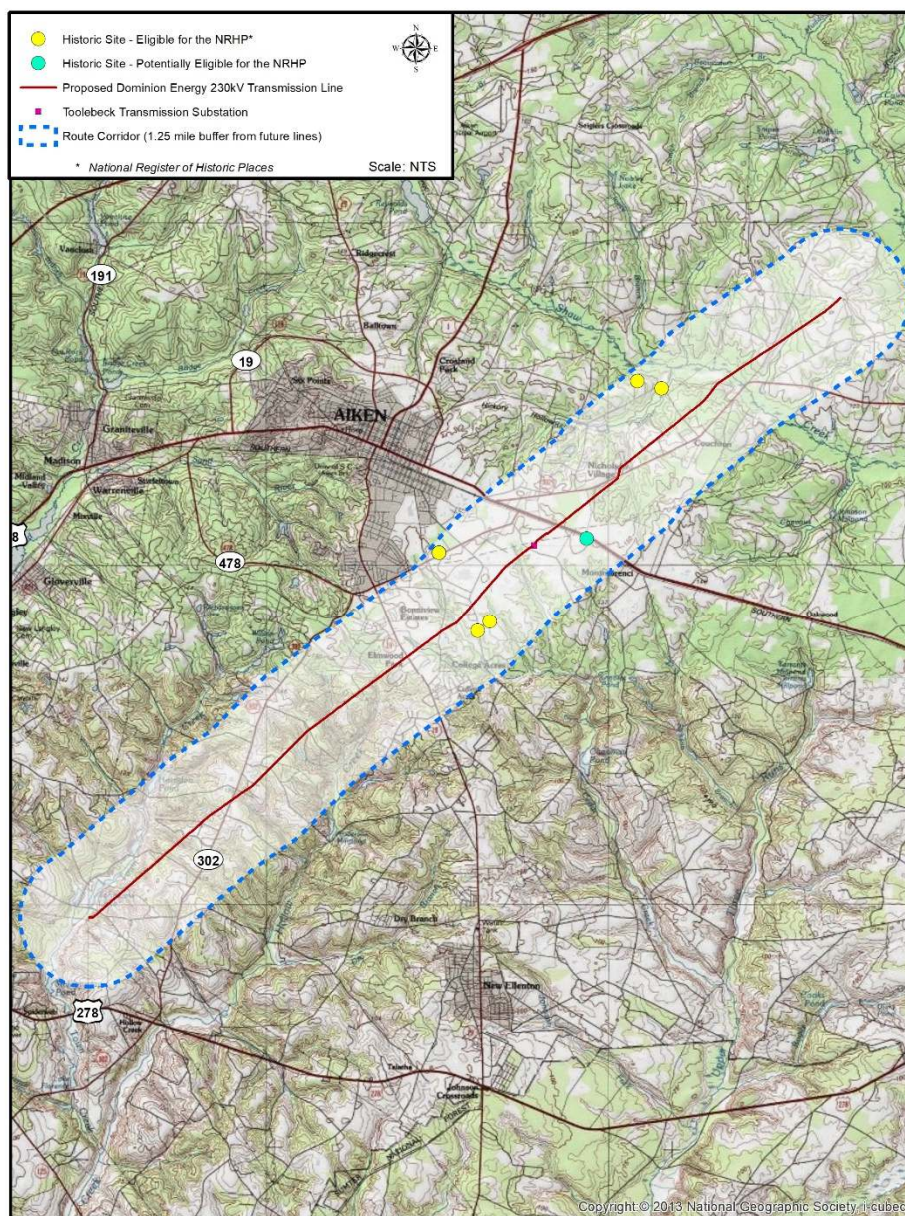


Figure 8: Historic Resource Vicinity Map – Area 1



Figure 9: Historic Resource Vicinity Map – Area 2

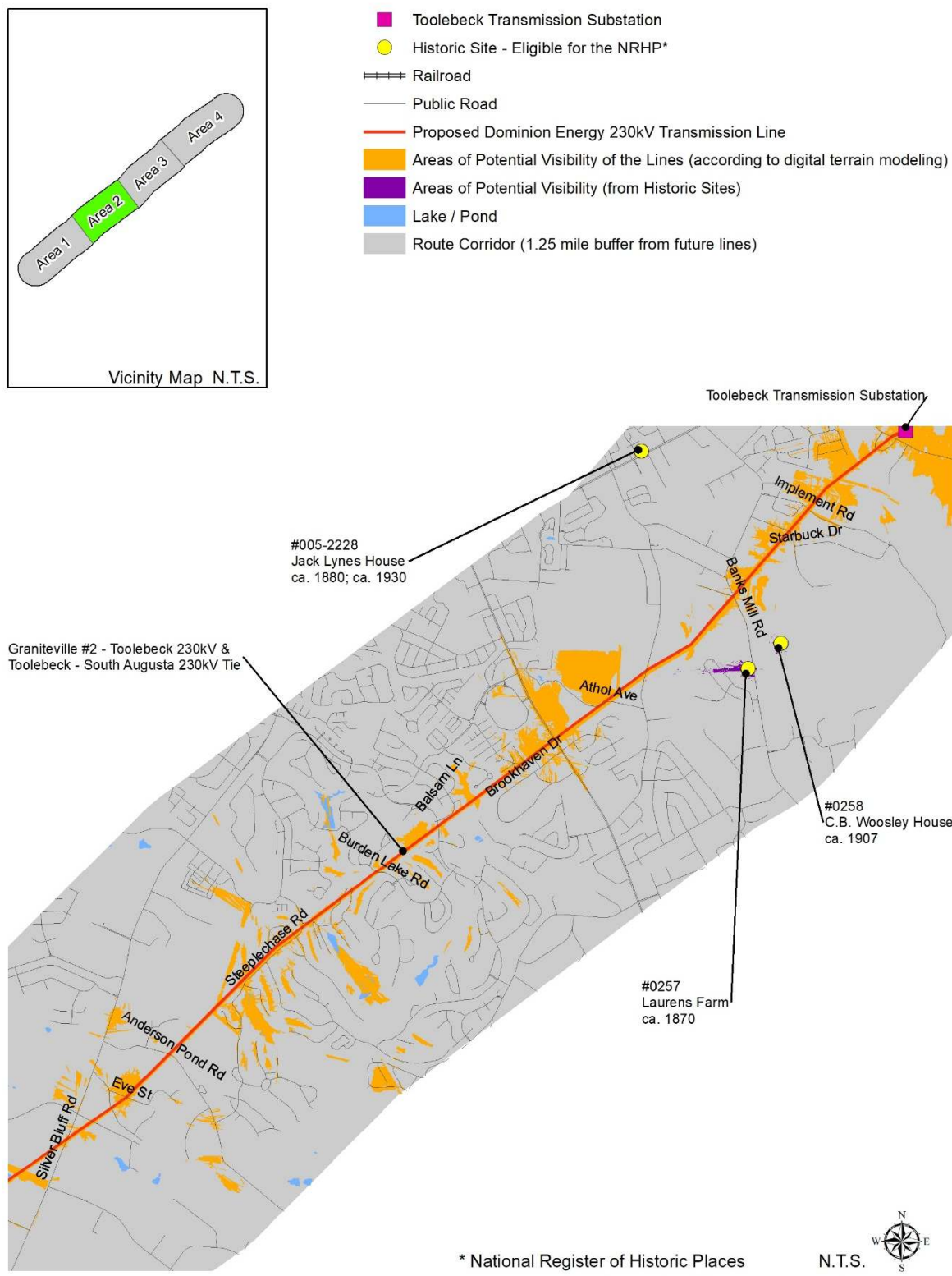


Figure 10 Historic Resource Vicinity Map – Area 3

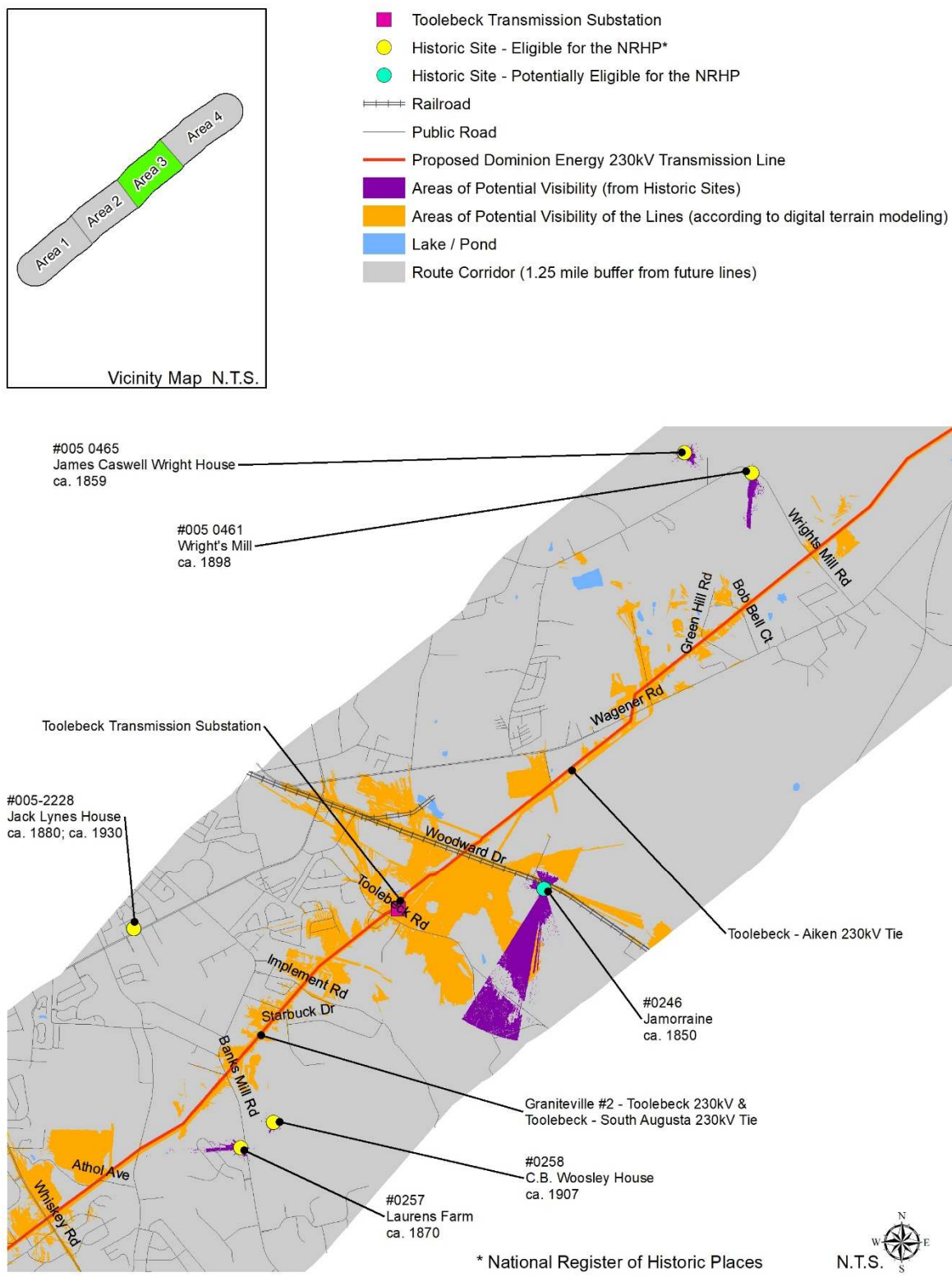
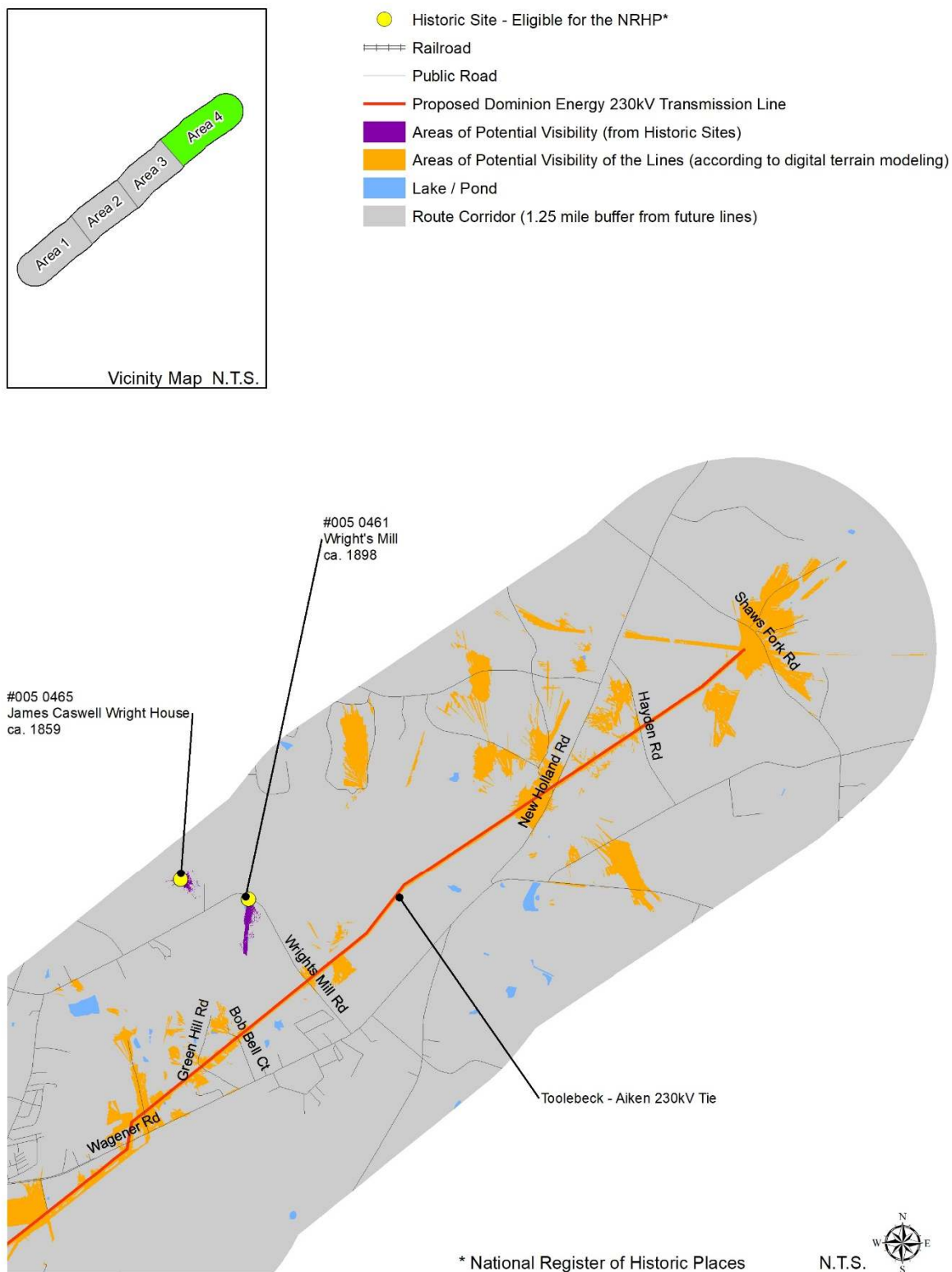


Figure 11 Historic Resource Vicinity Map – Area 4



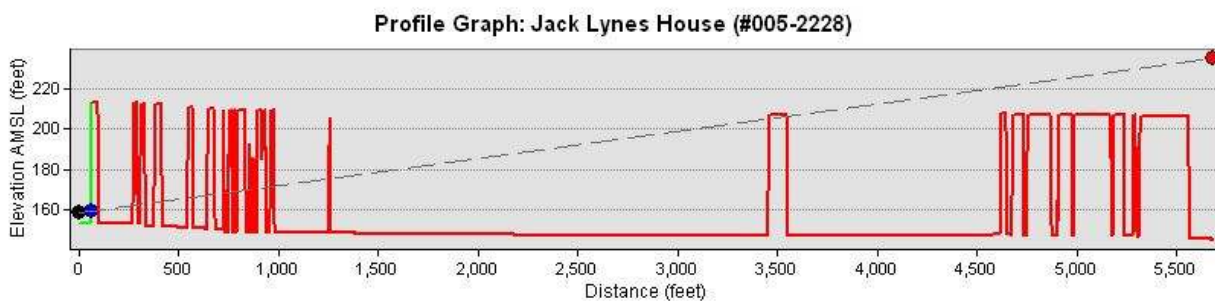
V. NRHP ELIGIBLE SITES

Historic Site: #005-2228 – Jack Lynes House

Description: Two-story residence, ca. 1880; ca. 1930

Distance from Lines' Route: 1.07 miles / 1.72 kilometers

Field Visit & Analysis: Though the resource faces the Project Lines' route, it was determined that it would not have a probable view of the Project Line's route from the house or yard area due to heavy foreground screening from scattered vegetation, nearby commercial development, and areas of heavy midground vegetative screening mixed with agricultural fields. In addition to the foreground vegetative screening, the resource is situated along the commercial corridor of E Pine Log Road, which is highly modified by retail buildings, restaurants, and overhead electric utilities.



Distance from Lines' Route: 5,670 ft.

Conclusion: No view of the Project Lines and thus, no visual impact.

Historic Site: #0257 Laurens Farm

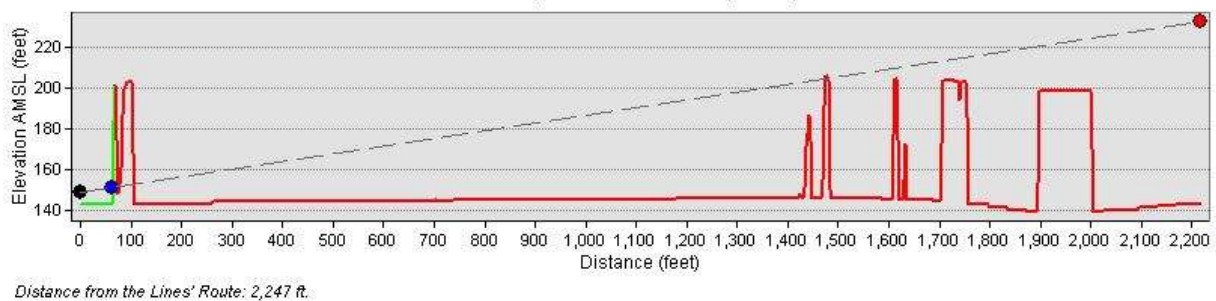
Description: Two-story wooden farm house, ca. 1870

Distance from Lines' Route: 0.39 miles / 0.63 kilometers

Field Visit & Analysis: The resource is a circa 1870 farmhouse surrounded by equestrian-related activities and is nestled within a historic setting of mature specimen trees. In addition to the foreground screening present on site, additional midground screening of mature forests limit potential views of the Project Lines.



Profile Graph: Laurens Farm (#0257)



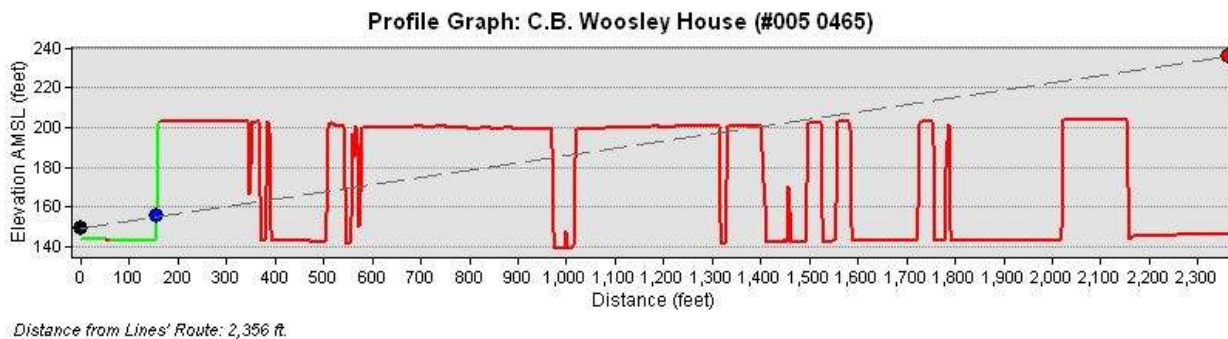
Conclusion: No view of the Project Lines and thus, no visual impact.

Historic Site: #0258 - C.B. Woosley House

Description: Two story frame residence, ca. 1907

Distance from Lines' Route: 0.45 miles / 0.72 kilometers

Field Visit & Analysis: The allée of trees to the residence and the dense grove of trees were the residence is situated have been preserved and provide no views of the resource from Banks Mill Road SE. The mature forests also provide significant and effective screening of the Project Lines' route.



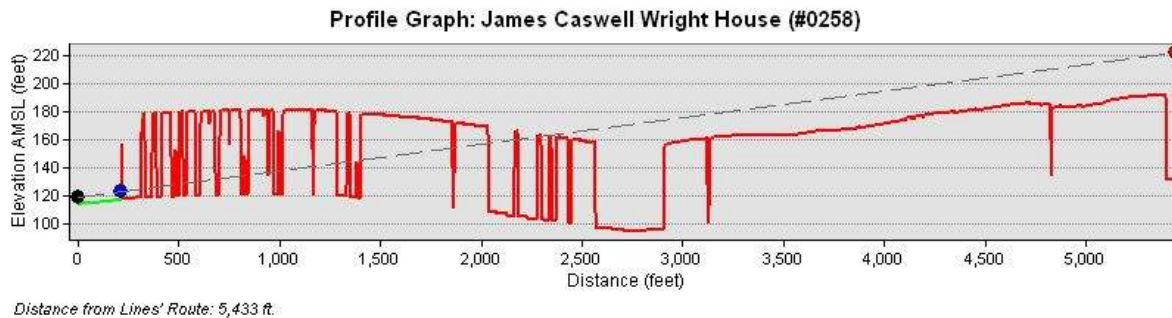
Conclusion: No view of the Project Lines and thus, no visual impact.

Historic Site: #005 0465 – James Caswell Wright House

Description: ca. 1859; Resource is inaccessible, and therefore unphotographed, but aerial imagery suggests it is still extant.

Distance from Lines' Route: 1.03 miles / 1.66 kilometers

Field Visit & Analysis: The resource is located within a gated property and was not accessible or able to be viewed from Wrights Mill Road. However, aerial photography suggests that the resource is located 0.25 miles off Wrights Mill Road within a dense stand of mature mixed pine/hardwood forests. Because of the distance of over one mile and the significant foreground and midground screening, views of the Project Lines are not probable.



Conclusion: No view of the Project Lines and thus, no visual impact.

Historic Site: #005 0461 – Wright’s Mill

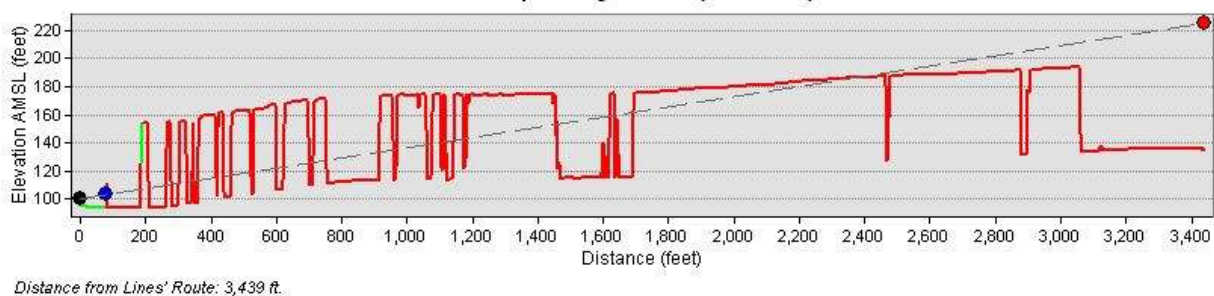
Description: Wooden structure of Wright’s Mill, Vernacular Building, ca. 1898

Distance from Lines’ Route: 0.65 miles / 1.05 kilometers

Field Visit & Analysis: Wright’s Mill is a small wooden structure that is situated on the edge of a large pond and is largely surrounded by dense vegetation that is slightly interrupted by an existing South Carolina Public Service Authority (Santee Cooper) transmission line running along the southeastern edge of the millpond just under 0.25 miles away. Though the Santee Cooper line is visible, the existing DESC 115 kV line within the Project Line’s route is not due to significant foreground and midground screening of mature forests.



Profile Graph: Wright’s Mill (#005 0461)



Conclusion: No view of the Project Lines and thus, no visual impact.

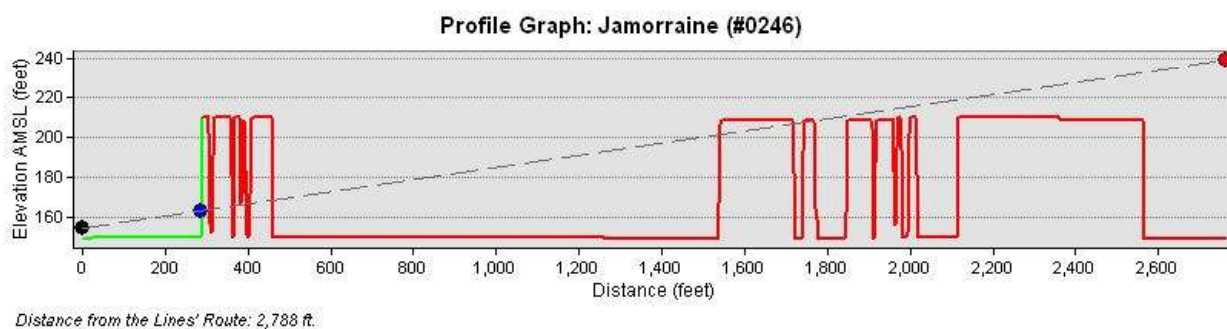
VI. NRHP Potentially Eligible Sites

Historic Site: #0246 - Jamorraine

Description: 1.5 story white house, ca. 1850

Distance from Lines' Route: 0.53 miles / 0.85 kilometers

Field Visit & Analysis: The resource is located adjacent to a commercial business and is situated amongst a grove a mature specimen trees that significantly screen views in the direction of the Project Lines' route. Views of the existing 115 kV lines in the Project Line's route, and views of the future 230 kV Project Lines are only evident from the adjacent Highway 78, which is more than 130 feet away from the property boundary, and 260' from the farmhouse.



Conclusion: Views from the resource are not likely, and thus, no visual impact.

VII. SUMMARY

Classification	Number of Resources
Total Resources Assessed	6
Total Resources with a Probable View of the Project Lines	0
Total Resources with a Probable Adverse Visual Impact Resulting from Construction of the Project Lines	0

An intensive analysis of all resources eligible or potentially eligible for the NRHP identified by Brockington was conducted using digital viewshed modeling coupled with site visits. This yielded an assessment of the visual impact that could potentially result from the construction of the Project Lines. The analysis concluded that none of the six historic resources that reside within 1.25 miles of the Project Lines will have a potential view, and therefore none will be adversely impacted.

APPENDIX A

References

Hobbs, David. "Literature Review and Reconnaissance of the Toolebeck - Aiken 230 kV Tie and Segments of the Graniteville #2 – Toolebeck 230 kV and Toolebeck – South Augusta 230 kV Tie and Associated Facilities Aiken County, South Carolina". Letter to Cory Touard. December 2019. MS. Atlanta, Georgia

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